

APPLICANT: NUNES VICENTE REBORDÃO, José, Manuel, et al.
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Amendments to the Claims:

Please amend the claims as follows, and cancel without prejudice the claims marked as cancelled:

1. (Currently Amended) A maskless optical setup device based on interferometric lithography to generate interference patterns within selected areas of a photosensitive material, without the need of any physical mask to delimitate the spatial extent of the register of the interference pattern, ensuring that the surrounding area is not affected by light, producing diffractive optical variable image devices for security, the device comprising:
an in-plane holography imaging device comprising an arbitrary number of objects, the images of which when combined, are for building up a final interference pattern;
an optical device based on the Scheimpflug and Hinge rules for ensuring adequate superposition between different optical beams in an imaging configuration; and
two optical channels for interfering in the photosensitive material with an adequate angle;
wherein the time needed to register a complete polygonal pattern is linearly proportional to the number of colors specified for the reference geometry and not to the overall area of the optical device.
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)

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7. (New) The maskless optical device of claim 1 comprising an optical configuration selected from the group consisting of: two physical objects and two physical optical channels; one physical and one virtual object and two physical optical channels; and one physical and one virtual object and one physical and one virtual optical channel.
8. (New) The maskless optical device of claim 1 wherein photosensitive material can be rotated to materialise diffractive patterns with different grating orientation.
9. (New) The maskless optical device of claim 1 wherein the angle between optical channels is controllable to materialise diffractive patterns with different grating periods.
10. (New) The maskless optical device of claim 1 in which the object is displayed by an amplitude spatial light modulator.